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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,484	01/10/2002	Tijs Wilbrink	FIS920010299US1 (14993)	9704

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EXAMINER
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OSORIO, RICARDO

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/045,484

**Applicant(s)**

WILBRINK ET AL.

**Examiner**

RICARDO L OSORIO

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 and 4.                      6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The polish reference PL 178077, and the internet document titled "Typen zonder toetsen", both cited on IDS dated 1/10/2002, paper # 2, were not considered by the examiner because they do not provide an English translation.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 2 recites the limitation "said limited range" in line 2. There is insufficient antecedent basis for this limitation in the claim.
4. Claim 22 recites the limitation "said projected display" in line 2. There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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6. Claims 1, 2, 5-7, 10, 11, 15-18, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Lieberman et al (US 2002/0075240).

Regarding claim 1, Lieberman teaches of a computer device (page 6, paragraph 140, lines 6-9) comprising: a projecting device (Fig. 8, reference character 68) for displaying a graphical representation of a keyboard (Fig. 8, reference character 18), said graphical representation including key locations (Fig. 8, reference character 82) capable of being selected by an object (page 7, paragraph 150, lines 16-17), said graphical image displayed in an area proximate said device (see Fig. 8, notice the graphical image is proximate to the projector); a signal detection system for detecting the presence of an object located at a selected key location within said area (page 7, paragraph 149, lines 5-13, and paragraph 150, lines 1-4); and, mechanism for determining the selected key in response to detecting an object at a corresponding selected key location (page 7, paragraph 150, lines 5-19), and registering said selected key as a keystroke in said computing device (page 6, paragraph 140).

Regarding claim 2, Lieberman teaches that said signal detection system is capable of detecting objects at locations within said limited range defined by said graphical representation (page 7, paragraph 149, lines 10-12 and paragraph 150, lines 1-4).

Regarding claim 5, Lieberman teaches that said signal detection system includes an electromagnetic signal transmitter means (Fig. 8, reference characters 102 and 104) for iteratively transmitting series of electromagnetic signals (page 7, paragraph 150, lines 4-10 and 16-20) sweeping, or scanning, said limited range (page 7, paragraph 149, lines 10-12 and

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paragraph 151, lines 10-12), and receiving electromagnetic signal reflections from detected objects (page 7, paragraph 150, lines 7-10 and 16-18), wherein said electromagnetic signal transmitter means is located a predetermined distance away from said graphical representation (see in Fig. 8, light travels a predetermined distance between source of light beams 102 and 104 and keyboard image, and page 7, paragraph 149, lines 10-12).

Regarding claim 6, Lieberman teaches that said determining mechanism includes: means for calculating a distance between said electromagnetic signal transmitter means and said detected object (page 7, paragraph 152, lines 5-13); and means for determining a current iteration of said series of electromagnetic signals (page 7, paragraph 150, lines 5-10, and 16-20, paragraph 152, lines 5-8 and 14-17. Note that the light beam transmissions are always repetitively reflected and detected by light detector, regardless of if a finger has been placed on one of the input areas), wherein said key is determined according to said distance and said current iteration (paragraph 152, lines 5-17).

Regarding claim 7, Lieberman further teaches that said means for calculating a distance between said electromagnetic signal transmitter means and said detected object includes means for determining an elapsed time between transmission of said electromagnetic signal and receipt of its corresponding reflected signal (page 7, paragraph 152, lines 5-8).

Regarding claim 10, Lieberman teaches the object includes a finger of a user of said computer device (page 7, paragraph 150, line 7).

Regarding claim 11, Lieberman further teaches of means for customizing content of said virtual keys provided in the graphical representation of said keyboard (page 7, paragraph 148, lines 3-9).

Regarding claim 15, Lieberman teaches of a method for providing input to a computer device (page 6, paragraph 140, lines 6-9) comprising the steps of :  
displaying a graphical representation of a keyboard image (Fig. 8, reference character 18), said graphical representation including key locations (Fig. 8, reference character 82) capable of being selected by an object (page 7, paragraph 150, lines 16-17), said graphical image displayed in a limited area proximate said device (see Fig. 8, the graphical image is in limited area proximate to the projector); detecting the presence of an object located at a selected key location (page 7, paragraph 149, lines 5-13, and paragraph 150, lines 1-4); and, determining the selected key in response to detecting an object at a corresponding selected key location (page 7, paragraph 150, lines 5-19).

Regarding claim 16, Lieberman teaches that said detecting step includes the steps of :  
iteratively transmitting series of electromagnetic signals (page 7, paragraph 150, lines 4-10 and 16-20) for sweeping, or scanning, said limited area (page 7, paragraph 149, lines 10-12 and paragraph 151, lines 10-12), a transmitter of said electromagnetic signals being provided at a limited distance away from said graphical representation ( see in Fig. 8, light travels a predetermined distance between source of light beams 102 and 104 and keyboard image, and

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page 7, paragraph 149, lines 10-12); and receiving via a receiver device electromagnetic signal reflections from an object positioned within said limited area (page 7, paragraph 150, lines 7-10 and 16-18).

Regarding claim 17, Lieberman teaches that said selected key determining step comprises the steps of :

calculating a distance between said electromagnetic signal transmitter and said detected object (page 7, paragraph 152, lines 5-13); and, determining a current iteration of said series of electromagnetic signals (page 7, paragraph 150, lines 5-10, and 16-20, paragraph 152, lines 5-8 and 14-17. Note that the light beam transmissions are always repetitively reflected and detected by light detector, regardless of if fingers have been placed on one of the input areas), wherein said key is determined according to said distance and said current iteration (paragraph 152, lines 5-17).

Regarding claim 18, Lieberman further teaches that said calculating step includes the step of determining an elapsed time between transmission of said electromagnetic signal and receipt of its corresponding reflected signal (page 7, paragraph 152, lines 5-8).

Regarding claim 21, Lieberman teaches, after the determination step, the step of registering said selected key as a keystroke in said computing device (page 6, paragraph 140).

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7. Claims 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Raffi et al (6,614,422).

Regarding claim 12, Raffi teaches of a computer device (Figs. 1A and 1B, reference character 80) comprising: a projecting device (Figs. 1A and 1B, reference character 145) for displaying at least portion of a screen image display (Fig. 1B, reference character 105, col. 8, lines 7-9, and col. 10, lines 37-44), said screen image display including displayed items (Figs. 1A and 1B, reference character 30) capable of being selected by an object (col. 9, lines 41-47); a signal detection system (Figs. 1A and 1B, reference character 20), for detecting the presence of an object located at a selected key location (col. 7, lines 37-42); and, mechanism for determining the selected item in response to detecting an object at a corresponding selected key (col. 9, lines 26-29, and col. 20, lines 21-34).

Regarding claim 13, Lieberman teaches that said signal detection system (Fig. 1A, reference character 20) is capable of detecting objects at locations within said limited range defined by said graphical representation (col. 7, lines 37-42 and col. 10, lines 27-30).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.



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9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (see above rejection under U.S.C. 102e) in view of Goldman (6,232,960).

Regarding claim 3, Lieberman further teaches of devices such as visible and non-visible light, acoustic, and infrared, for detecting the location of objects within said limited range (Fig. 8, reference characters 102 and 104, and page 8, paragraph 156, and paragraph 157, lines 14-16). However, Lieberman does not teach that said signal detection system includes a radar device for detecting the location of objects within a limited range.

Goldman teaches of a signal detection system including a radar device for detecting the location of objects within a limited range (col. 8, lines 61-67 and col. 9, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the radar device, as taught by Goldman, in the device of Lieberman because radar devices are well known in the art of electromagnetic signal detectors to be electromagnetic energy source devices that can be used as an alternative to other devices, such as laser, microwave, ultraviolet, infrared, etc, to transmit a signal that is detectable when a user's finger, or other object, reflects a transmitted signal back to the detector.

10. Claims 4, 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (see above rejection under U.S.C. 102e) in view of Hillman et al (US 2002/0061217).

Regarding claim 4, Lieberman does not teach of said signal detection system including a laser generator and photodetector device for detecting the location of objects within said limited range.

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Hillman teaches of a signal detection system including laser generator and photodetector device for detecting the location of objects within a limited range (page 3, paragraph 40, lines 6-16 and paragraph 56).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the laser generator and detector, as taught by Hillman, in the device of Lieberman because laser devices are well known in the art of detectors to be electromagnetic energy source devices that can be used as an alternative to other detectors such as light emitting diodes, microwave, ultraviolet, etc, to transmit a signal that is detectable when a user's finger, or other object, reflects a transmitted signal back to the detector. (see Hillman, page 3, paragraph 40, lines 8-13).

Regarding claim 8, further, Lieberman fails to teach of memory means comprising a mapping of valid selectable key strokes according to calculated distances and electromagnetic pulse iterations.

Hillman teaches of memory means (page 5, paragraph 55, lines 8-9) comprising a mapping of valid selectable keystrokes (page 5, paragraph 55, lines 5-15) according to calculated distances (page 4, paragraph 46, and page 5, paragraph 55, lines 8-11) and electromagnetic pulse iterations (page 5, paragraph 65, and paragraph 66, lines 1-4. Note that signals are transmitted repetitively, and that an object is detected during a specific signal transmission or scan).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to map the valid selectable keystrokes as taught by Hillman, in the device of Lieberman so that by comparing the position of the detected object with a stored table of positions, the appropriate keystroke can be determined (page 5, paragraph 55, lines 11-15).

Regarding claim 19, further, Lieberman fails to teach the step of providing mapping of valid selectable keystrokes according to calculated distances and electromagnetic pulse iterations.

Hillman teaches of providing a mapping of valid selectable keystrokes (page 5, paragraph 55, lines 5-15) according to calculated distances (page 4, paragraph 46, and page 5, paragraph 55, lines 8-11) and electromagnetic pulse iterations (page 5, paragraph 65, and paragraph 66, lines 1-4. Note that signals are transmitted repetitively, and that an object is detected during a specific signal transmission or scan).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to map the valid selectable keystrokes as taught by Hillman, in the device of Lieberman so that by comparing the position of the detected object with a stored table of positions, the appropriate keystroke can be determined (page 5, paragraph 55, lines 11-15).

11. Claims 9 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (see above rejection under U.S.C. 102e) in view of Torunoglu et al (US 2003/0132921).

Regarding claim 9, Lieberman, further, fails to teach of leg means for adjusting a vertical and angular orientation of said projecting and signal detection devices with respect to a surface, said adjusting mechanism for adjusting a range of said series of electromagnetic signals according to a projected display.

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Torunoglu teaches of leg means for adjusting a vertical and angular orientation of said projecting and signal detection devices with respect to a surface (page 4, paragraph 48, lines 14-16 and paragraph 58, lines 4-10, page 6, paragraph 78, lines 4-10, paragraph 85, lines 2-10, and paragraph 87, lines 11-14), said adjusting mechanism for adjusting a range of said series of electromagnetic signals according to a projected display (page 6, paragraph 85, lines 2-10 and paragraph 87, lines 11-18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the leg means, as taught by Torunoglu, in the device of Lieberman because different users may wish to adjust the height and angle of their device to adjust to their various needs and to allow the device to be tilted at a desired angle (see Torunoglu, page 4, paragraph 58, lines 4-5, and page 6, paragraph 78, lines 9-11); and to allow the user to make necessary adjustments to account for different operating environments and work surfaces (see page 7, paragraph 78, lines 1-2).

Regarding claim 20, Lieberman, further, fails to teach of, prior to iteratively transmitting a series of electromagnetic signals for sweeping said limited area, the step of positioning the transmitter device to thereby restrict electromagnetic signal sweep range.

Torunoglu teaches of the step of adjusting, or positioning, the transmitter device to thereby restrict electromagnetic signal sweep range (page 6, paragraph 85, lines 2-10 and paragraph 87, lines 11-16. Note that by adjusting the height and angle of the light source with respect to a surface, prior to operation, naturally, the electromagnetic signal sweep range will be restricted).

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the positioning means, as taught by Torunoglu, in the device of Lieberman to allow the user to make necessary adjustments to account for different operating environments and work surfaces (see paragraph 78, lines 1-2).

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lieberman (see above rejection under U.S.C. 102e) in view of Sandbach et al (US 2003/0011576).

Regarding claim 22, Lieberman fails to teach of, after the determination step, the step of notifying a user of a key being selected in said projected display, said notifying step including changing the color or dimension of the selected virtual key.

Sandbach teaches that, after determining the selected key in response to detecting an object at a corresponding selected key location, of the step of notifying a user of a key being selected in said projected display, said notifying step including changing the color of the selected virtual key (page 1, paragraph 3, lines 1-10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to change the color of the key, as taught by Sandbach, in the device of Lieberman to indicate that its selection has been recognized by the computer (see Sandbach, page 1, paragraph 3, lines 9-10).

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raffi (see above rejection under U.S.C. 102e) in view of Goldman (6,232,960).

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Regarding claim 14, Raffi fails to teach of a radar device for detecting the location of objects within a limited range.

Goldman teaches of a radar device for detecting the location of objects within a limited range (col. 8, lines 61-67 and col. 9, line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the radar device, as taught by Goldman, in the device of Raffi because radar devices are well known in the art of electromagnetic signal detectors to be electromagnetic energy source devices that can be used as an alternative to other devices, such as laser, microwave, ultraviolet, infrared, etc, to transmit a signal that is detectable when a user's finger, or other object, reflects a transmitted signal back to the detector.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ricardo L. Osorio whose telephone number is (703) 305-2248. The examiner can normally be reached on Mon-Thu from 7:00 AM-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached at 305-4938.

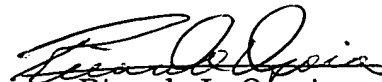
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**or faxed to: (703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

  
Ricardo L. Osorio  
Examiner  
Art Unit: 2673

RLO  
November 23, 2003